ABSTRACT OF THE DISCLOSURE

Methods and systems for allocating address space resources to resource requesting peripheral devices in an efficient manner. Resource request are gathered for enumerated peripheral devices host by a computer platform. A map containing resource alignment requirements is built, and a virtual resource allocation map is computed based on aggregated resource requests and the alignment requirements. The resource aggregations are, in turn, based on a hierarchy of the peripheral devices. A bin-packing algorithm is employed to determine allocation of the resource requests so as to minimize resource address space allocations. The virtual resource map is then used to perform actual resource allocations. The resources include peripheral device I/O address allocation and peripheral device memory address allocations.